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No. 9907 P. 3

JAN 13 2011

PATENT APPLN. NO. 10/522,771  
RESPONSE UNDER 37 C.F.R. § 1.116

PATENT  
FINAL

REMARKS

Claims 1, 4-9, 14-21, and 24-29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kazuhara (JP 2002-100357) in view of Kurokawa (JP 06-243871). Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kazuhara in view of Kurokawa and further in view of Goto (US 6444351).

Kazuhara is cited as disclosing a lithium ion battery comprising, as a positive active material, a lithium-nickel-manganese complex having a R-3m rhombohedral structure expressed by  $\text{Li}_x\text{Ni}_y\text{Mn}_{1-y-z}\text{M}_2\text{O}_2$  and a lithium-cobalt complex oxide having a R-3m rhombohedral structure expressed by  $\text{Li}_x\text{CoO}_2$ .

The Office notes that the lithium metal complex oxide of Kazuhara does not include fluorine. Kurokawa is cited as teaching that fluorination contributes to retaining the crystal structure during charge and discharge cycles. The Office explains that fluorination occurs by adding LiF to raw materials LiOH and  $\text{Ni}(\text{OH})_2$  and calcinating the mixture.

The position of the Office is that it would have been obvious to one of ordinary skill in the art at the time the invention was made to fluorinate the positive active material of Kazuhara by calcinating the raw materials with LiF as taught by Kurokawa.

The rejection in the Final Office Action corresponds to that

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made in the previous Office Action dated April 28, 2010. In response to that rejection, applicants, in a response filed July 28, 2010, argued that Kurokawa discloses a fluorine contained composite oxide represented by a formula:  $\text{Li}_x\text{Ni}_{1-y}\text{Co}_y\text{O}_w\text{F}_z$  as a positive active material (English abstract) whereas Kazuhara discloses a lithium-nickel-manganese-M complex oxide expressed by  $\text{Li}_x\text{Ni}_y\text{Mn}_{1-y-z}\text{M}_z\text{O}_2$  and a lithium-cobalt complex oxide expressed by  $\text{Li}_x\text{CoO}_2$  as a positive active material (English abstract, a copy of which is attached to this letter).

The  $\text{Li}_x\text{Ni}_{1-y}\text{Co}_y\text{O}_w\text{F}_z$  disclosed in Kurokawa does not include manganese. Therefore, the  $\text{Li}_x\text{Ni}_{1-y}\text{Co}_y\text{O}_w\text{F}_z$  does not correspond to the lithium-nickel-manganese-M complex oxide disclosed in Kazuhara. Applicants noted that Nishida (EP 1246279), which was cited in the Office Action dated October 26, 2009, teaches in paragraphs [0075] and [0087], that the same effect (of fluorine) is not necessarily obtained in different types of positive active materials. Therefore, applicants urged, a person of ordinary skill in the art could not reasonably expect the effect of fluorine in Kurokawa to apply to the battery of Kazuhara in which the positive active material is different from that of Kurokawa and would not have a proper reason to add fluorine to the lithium-nickel-manganese complex oxide of Kazuhara.

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In response to this argument, the Office in the present Final Office Action states:

"In response, it is noted that the rejection is not based on Nishida. Although the difference in the compounds between Kazuhara and Kurokawa is the presence and the absence of manganese, respectively, Kurokawa teaches that fluorination is applied to a "multiple oxide" [0014], or a "composite oxide." Kurokawa's general teaching that fluorinating a lithium composite metal oxide contributes to retaining the crystal structure during charge and discharge cycles in a lithium secondary battery [0014] would allow one of ordinary skill in the art to expect a similar effect in other lithium composite metal oxides."

Applicants respectfully submit that the positions of the Office as stated above are improper.

First, regarding Nishida, it is absolutely irrelevant that the rejection is not based on Nishida. Obviousness under 35 U.S.C. § 103(a) requires consideration of the prior art as a whole. Nishida is part of the prior art and its teaching that the effect of fluorine is not necessarily obtained in different types of positive active materials is evidence rebutting the position of the Office and must be considered.

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Second, Kurokawa does not teach applying fluorination to a "multiple oxide" [0014], or a "composite oxide." Kurokawa in paragraph [0014] describes that: "'In a battery according to the present invention, since the specific fluoride-containing multiple oxide is used as positive active material, collapse of the crystal structure of positive active material does not take place easily at the time of charge and discharge". (Emphasis applicants'). The "specific fluoride-containing multiple oxide" is the fluoride-containing multiple oxide recited in claim 1 of Kurokawa - not a multiple oxide or composite oxide, generally. Therefore, the disclosure of Kurokawa in paragraph [0014] would not allow one of ordinary skill in the art to expect the effect disclosed in the latter sentence of paragraph [0014] to be expected in other than in the specific fluoride-containing multiple oxide recited in claim 1 of Kurokawa.

A copy of an English translation of the first sentence of paragraph [0014] of Kurokawa is attached to this response.

For the above reasons, the combination of Kazuhara and Kurokawa is insufficient to support a prima facie case of obviousness of the claims of the present application under 35 U.S.C. 103(a) and removal of the 35 U.S.C. § 103(a) grounds of rejection is in order.

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The foregoing is believed to be a complete and proper response to the Office Action dated October 13, 2010, and is believed to place this application in condition for allowance.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to Deposit Account No. 111833.

In the event any additional fees are required, please also charge Deposit Account No. 111833.

Respectfully submitted,

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